



Okeanos Explorer ROV Dive Summary

Dive Information	
General Location	
General Area Descriptor	Blake Plateau
Site Name	Cape Fear
Science Team Leads	Leslie Sautter / Cheryl Morrison
Expedition Coordinator	Kasey Cantwell
ROV Dive Supervisor	Bobby Mohr
Mapping Lead	Derek Sowers
ROV Dive Name	
Cruise	EX1806
Leg	-
Dive Number	DIVE10
Equipment Deployed	

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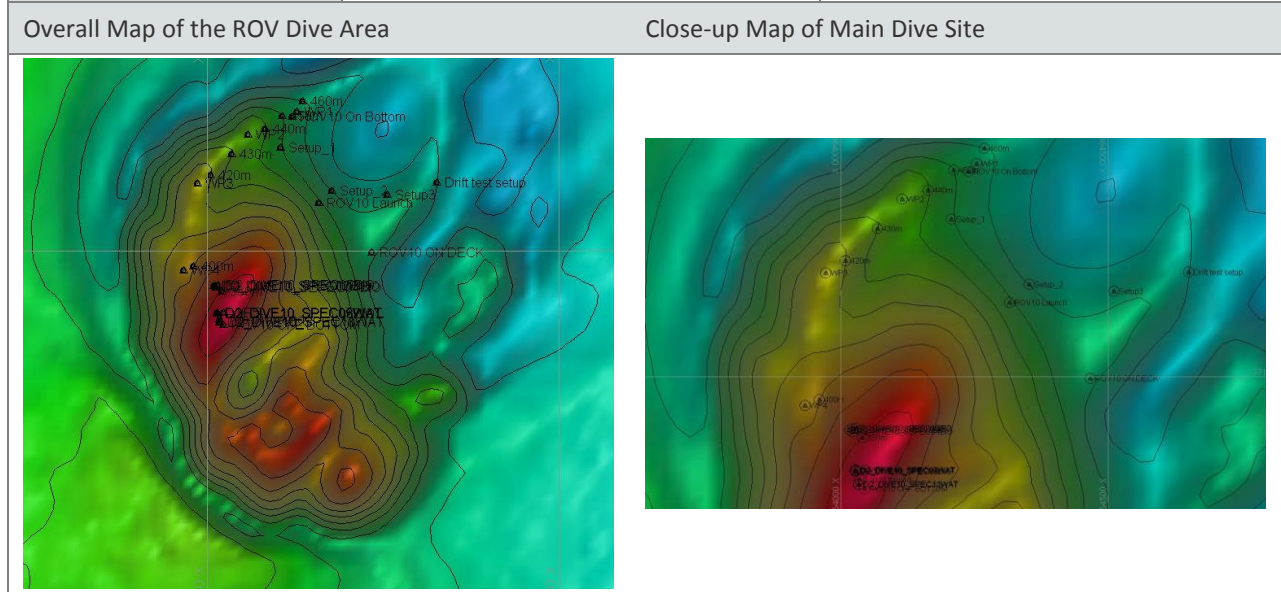
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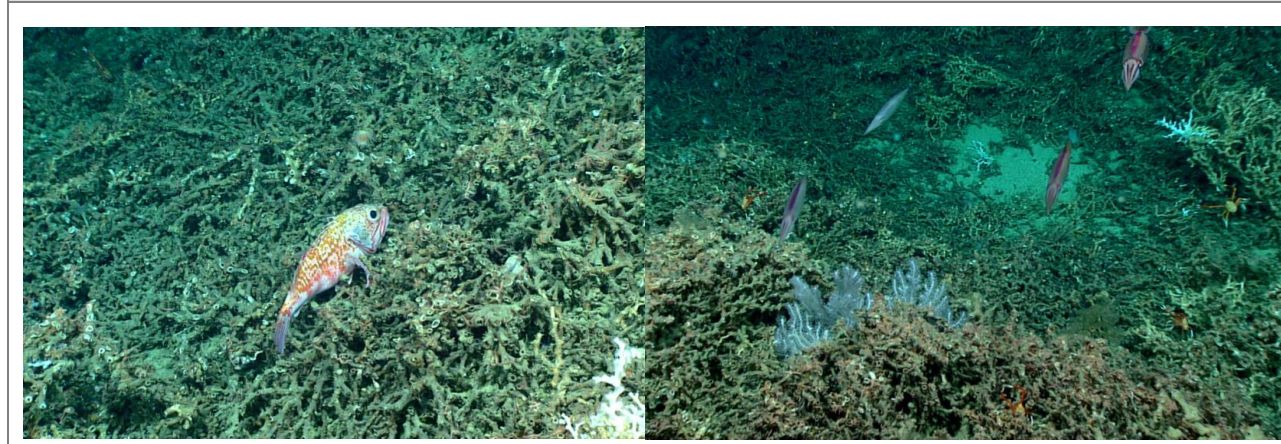
<p>Purpose of the Dive</p>	<p>This dive is part of a series that investigates the similarities and differences in community composition between deepwater habitats of the SE US continental margin. This site is within Cape Fear Lophelia Banks Deepwater MPA. The general area was proposed by the Deep Search team, to identify presence / absence of deepwater corals and benthic communities in areas identified as having oil and gas potential in the Atlantic. Also, the Deep Sea Research and Technology Program and the NOAA Ocean Acidification Program will use information from this dive for future cruises when they will be sampling a number of locations in this area with the objective of fully constraining the carbonate chemistry of the area. Obtaining seafloor video footage at the same area could improve our understanding of the relationship between deep coral communities and carbonate chemistry.</p> <p>This region was first mapped during a MPA cruise aboard the NOAA Ship <i>Nancy Foster</i> in 2007 (NF-07-02) and new information will inform biogeographic patterns in the region. Diving in the area will provide important information to groundtruth these models.</p>
<p>Description of the Dive</p>	<p>An unexplored flank of <i>Lophelia</i> Mound off the coast of Cape Fear, NC was traversed during this dive. The ROV began at a depth of 450 m, ascended a low-slope (5-10°) ridge on the mound's northwestern flank, then climbed a 15° slope to the peak at a depth of 375 m.</p> <p>Dead coral matrix (<i>Lophelia pertusa</i>) covered the sea floor throughout the dive, with some live white colonies at tips and larger dead coral matrix mounds with gullies in between in some areas. Dominant fauna included orange anemones (especially at the top of the coral mound), orange brittle stars wrapped within in the coral matrix, <i>Eumunida picta</i> squat lobsters, a large, feathery hydroid species, plus the sponge demosponge <i>Geodia</i> and the hexactinellid sponge <i>Vazella pourtalesi</i> and the blackbelly rosefish, <i>Helicolenus dactylopterus</i>. Small groups of wreckfish (<i>Polyprion americanus</i>) followed the ROV throughout most of the dive and several schools of shortfin squid (either <i>Illex fabroculus</i> or <i>I. aligrosus</i>) were observed, along with several individual octopus, <i>Graneledone verrucosa</i>, on the coral rubble substrate. Besides the stony coral <i>L. pertusa</i>, and the orange cup coral (<i>Bathypsammia</i> sp?) octocorals such as <i>Anthothelia</i>, a white species (<i>Eunicella</i> or <i>Muriceides</i>?), <i>Paramuricea</i> with <i>Astroschema</i> brittle stars, and a mustard-yellow octocoral, possibly <i>Chelidonisis aurantica</i>, were seen along the dive track, the latter at the mound crest. Echinoderms observed included a small <i>Marginaster</i>, possibly <i>M. pectinatus</i>, seen on the common sponge <i>Vazella pourtalesi</i>. Chris Mah pointed out that this species may remain small in size as no large individuals have been found. Other asteroid sea stars included <i>Plinthaster dentatus</i>, the goniasterid <i>Ceramaster</i> sp., <i>Neomorphaster</i>, plus the birsingid <i>Novodinia</i>. Urchins observed included <i>Echinus</i> and pencil urchins (<i>Cidaris</i>). Crustaceans observed included a large spider crab, <i>Rochinia crassa</i>, <i>Bathynectes</i> portunid crabs, and a large <i>Cancer</i> crab. Fish were numerous during this dive. Along with the wreckfish, two sharks were seen, including several chain dogfish (<i>Scyliorhinus retifer</i>) and the catshark (<i>S. meadi</i>). Benthic fishes included the red-eyed gaper, <i>Chaunax stigmaeus</i>, a juvenile <i>Trachyscorpia cristulata</i>, the greeneye, <i>Chlorophthalmus agassizi</i>, a bluish macrourid, <i>Nezumia aequalis</i>, and a gray morid hake, <i>Laemonema barbatula</i>.</p>



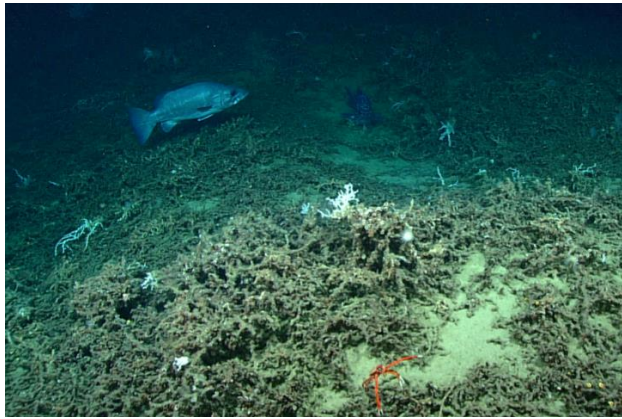
<p>Notable Observations</p>	<ul style="list-style-type: none"> - Large number of Wreckfish we encountered throughout the dive - Mostly dead corals on the side of the feature explored, but overall medium diversity with an abundance of organisms that were present 	
<p>Community Presence/ Absence (<i>community is defined as more than two species</i>)</p>	<p><input checked="" type="checkbox"/> Corals and Sponges Present</p> <p><input type="checkbox"/> Chemosynthetic Community Present</p> <p><input type="checkbox"/> High biodiversity Community Present</p>	<p><input type="checkbox"/> Active Seep or Vent</p> <p><input type="checkbox"/> Extinct Seep or Vent</p> <p><input type="checkbox"/> Hydrates Present</p>



Representative Photos of the Dive

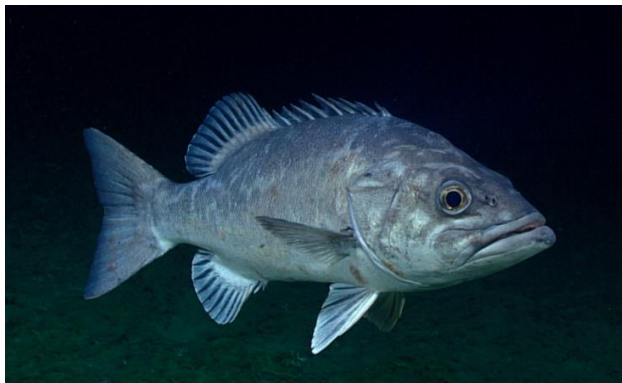


<p>Throughout the dive, the seabed was comprised of broken coral skeleton rubbles. Blackbelly rosefish (<i>Helicolenus dactylopterus</i>) were common.</p>	<p>Along the ascent, areas of the at the ridge's crest were gullied. Higher areas were home to a few coral species. Squid were very abundant in the area (shown swimming through the field of view).</p>
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Several wreckfish (*Polyprion americanus*) were observed, particularly within the gullies. The stony coral *Lophelia* was present, but live coral was far less abundant than expected.

Orange anemones were extremely abundant at the mound's crest, and reminded us of a "chrysanthemum garden."



The wreckfish (*Polyprion americanus*) encountered were each at least 1m in length.

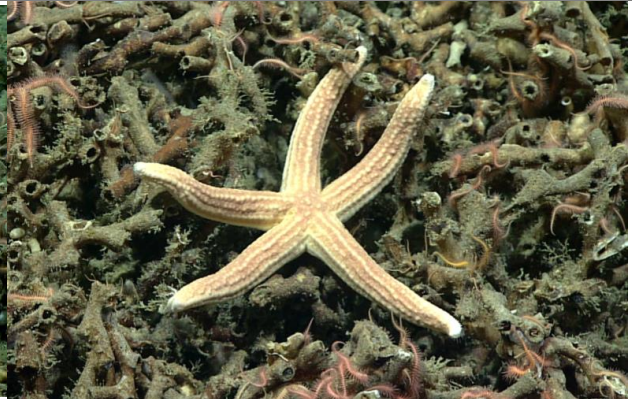
Several chain dogfish (*Scyliorhinus retifer*) were well camouflaged amidst the coral rubble substrate.



Several octopus (*Graneledone verrucosa*) were observed on dead coral rubble substrate.

Several red-eye gapers (*Chaunax stigmaeus*) were seen. Note the dense abundance of brittle stars on the coral rubble. These were far more prevalent at this site than at others

previous. Also pictured is the white stony coral, *Lophelia pertusa* and the squat lobster *Eumunida picta*.



A spider crab (*Rochinia crassa*).

The seastar *Neomorphaster* was observed several times.



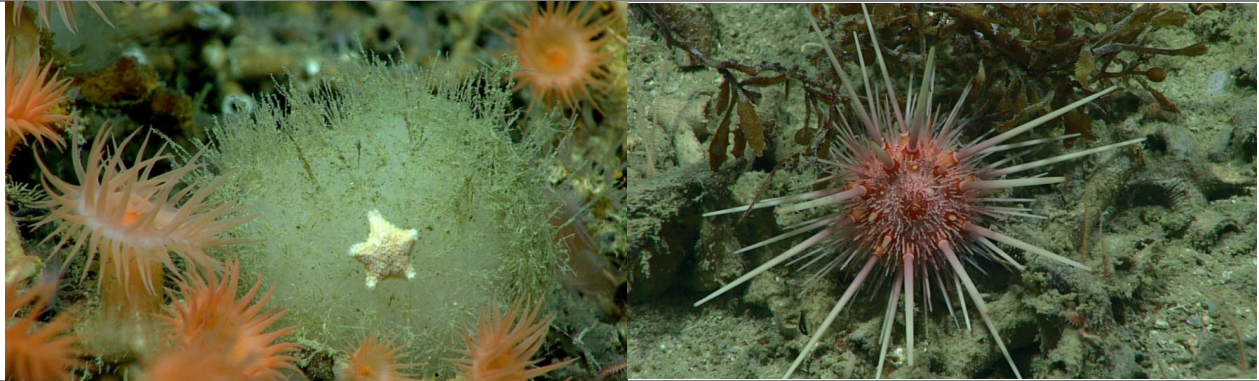
A conger eel (*Conger oceanus*) was found lurking in the coral framework. The dominant sponge, *Vazella pourtalesi*, is shown in the foreground.

A pair of bathyal swimming crabs, *Bathynectus longispina*.



Squat lobsters are ready at the defense as a cat shark (*Scyliorhinus meadi*) passes by.

Thousands of densely populated orange anemones dominated the mound-crest seascape.



A tiny seastar *Marginaster pectinatus* was observed on a *Vazella pourtalesi* sponge. The orange anemones are in the foreground.

Pencil urchins (*Cidaris*) were common on the mound crest.

Samples Collected

Sample


Sample ID	D2_DIVE10_SPEC01BIO		
Date (UTC)	20180624		
Time (UTC)	164705		
Depth (m)	403.08		
Temperature (° C)	8.62		
Field ID(s)	Hydrozoa (hydroid)		
Reason for Collection	<i>Site characterization / Dominant fauna</i>		
Notes			
Associates	Associate ID	Field Identification	Notes
	A01	<i>Lophelia pertusa</i>	
	A02	Polynoidae (scale worm)	On A01

Sample

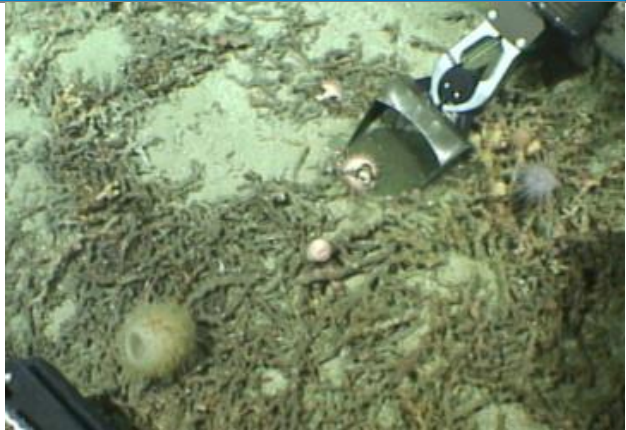
Sample ID	D2_DIVE08_SPEC02BIO	
Date (UTC)	20180624	
Time (UTC)	180418	
Depth (m)	386.26	
Temperature (° C)	8.58	

Field ID(s)	Hydrozoa (hydroid)		
Reason for Collection	<i>Site characterization</i>		
Notes			
Associates	Associate ID	Field Identification	Notes
	None		

Sample

Sample ID	D2_DIVE10_SPEC03GEO		
Date (UTC)	20180624		
Time (UTC)	181103		
Depth (m)	386.25		
Temperature (°C)	8.58		
Field ID(s)			
Reason for Collection	<i>Site characterization</i>		
Notes			
Associates	Associate ID	Field Identification	Notes
	None		

Sample

Sample ID	D2_DIVE10_SPEC04BIO	
Date (UTC)	20180624	
Time (UTC)	181421	
Depth (m)	386.27	
Temperature (°C)	8.58	
Field ID(s)	<i>Echinus urchin.</i>	
Reason for Collection	<i>Broken during SPEC03GEO sediment collection</i>	
Notes		
Associates		

	Associate ID	Field Identification	Notes
	A01	coral rubble	
	A02	Actinaria (anemones, 2)	On A01
	A03	Ophiuroidea (brittlestars, 12)	
	A04	Demospongiae	On A01

Sample																						
Sample ID	D2_DIVE10_SPEC05BIO																					
Date (UTC)	20180624																					
Time (UTC)	182849																					
Depth (m)	386.55																					
Temperature (°C)	8.57																					
Field ID(s)	Octocorallia																					
Reason for Collection	<i>Site characterization</i>																					
Notes																						
Associates	<table border="1"> <thead> <tr> <th>Associate ID</th> <th>Field Identification</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>A01</td> <td><i>Periclimes</i> sp. (2)</td> <td>One gravid female</td> </tr> <tr> <td>A02</td> <td>Actinaria (6)</td> <td></td> </tr> <tr> <td>A03</td> <td><i>Eumunida</i> sp. (1)</td> <td></td> </tr> <tr> <td>A04</td> <td>Ophiuroidea (1)</td> <td></td> </tr> <tr> <td>A05</td> <td>Ophiuroidea (1)</td> <td>Different than A04</td> </tr> <tr> <td>A06</td> <td>Bivalvia</td> <td></td> </tr> </tbody> </table>	Associate ID	Field Identification	Notes	A01	<i>Periclimes</i> sp. (2)	One gravid female	A02	Actinaria (6)		A03	<i>Eumunida</i> sp. (1)		A04	Ophiuroidea (1)		A05	Ophiuroidea (1)	Different than A04	A06	Bivalvia	
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A01	<i>Periclimes</i> sp. (2)	One gravid female																				
A02	Actinaria (6)																					
A03	<i>Eumunida</i> sp. (1)																					
A04	Ophiuroidea (1)																					
A05	Ophiuroidea (1)	Different than A04																				
A06	Bivalvia																					



Sample	
Sample ID	D2_DIVE10_SPEC06BIO
Date (UTC)	20180624
Time (UTC)	193755
Depth (m)	373.75
Temperature (°C)	8.58



Field ID(s)	Hexactinellida		
Reason for Collection	<i>Possibly Vazella sp., collected for identification</i>		
Notes	Placed in port rock box.		
Associates	Associate ID	Field Identification	Notes
	A01	coral rubble	
	A02	Ophiuroidea (3)	
	A03	Polychaeta	
	A04	Actinaria (2)	
	A05	Sipuncula	
	A06	Hexactinellida (2)	

Water Samples

Though water samples were collected on this dive, there were issues with sample storage and preservation, therefore no water samples were retained nor archived. Sample numbering and data remains the same, as if water sampling did occur.

EX1806_DIVE10_SPEC10WAT, EX1806_DIVE10_SPEC11WAT, EX1806_DIVE10_SPEC07WAT, EX1806_DIVE10_SPEC108WAT, and EX1806_DIVE10_SPEC109WAT have no physical specimen associated with them.

Please direct inquiries to:

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